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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,203

11/14/2003

Michael Seul

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ERIC P. MIRABEL
35 TECHNOLOGY DRIVE
SUITE 100
WARREN, NJ 07059

EXAMINER

TUCKER, WESLEY J

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/714,203	Applicant(s) SEUL ET AL.	
	Examiner WESLEY TUCKER	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12-18-03, 5-26-04, 6-30-04, 7-19-04, 2-22-05, 8-2-</u> | 6) <input type="checkbox"/> Other: _____ |

05.

DETAILED ACTION

Response to Restriction

1. Applicant's response filed July 10th 2008 has been entered and made of record.
2. Applicant elected claims 1-8 in response to the previously mailed restriction requirement. Claims 1-8 are now pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Section IV.C, reads as follows:

While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be. In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than for the abstract idea, natural phenomenon, or law of nature itself.

For claims including such excluded subject matter to be eligible, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. Diehr, 450 U.S. at 187, 209 USPQ at 8 ("application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); Benson, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it "has no substantial practical application").

To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:

The claimed invention "transforms" an article or physical object to a different state or thing.

The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

3. Claims 1-8 is/are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 1 recites the mere manipulation of data or an abstract idea, or merely solves a mathematical problem without a limitation to a practical application. A practical application exists if the result of the claimed invention is “useful, concrete and tangible” (with the emphasis on “result”)(Guidelines, section IV.C.2.b). A “useful” result is one that satisfies the utility requirement of section 101, a “concrete” result is one that is “repeatable” or “predictable”, and a “tangible” result is one that is “real”, or “real-world”, as opposed to “abstract” (Guidelines, section IV.C.2.b)). Claim 1 merely manipulates data without ever producing a useful, concrete and tangible result.

Claim 1 reads as follows:

“A method of constructing a grid for use in aligning two or more images, where said images reflect corresponding arrays of signals, comprising:

applying an algorithm to the array which finds the shortest paths among the local intensity minima so as to delineate the local intensity maximum associated with a signal in the array.”

Essentially, the claim recites a method with a single step and no resulting tangible result. The preamble hints that a grid is to be constructed and that the grid is to be used to align images, but there is only one step directed to finding shortest paths. It is unclear how this constructs a grid or achieves any real concrete or tangible result.

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After the single step listed in the claim all that has been achieved is the finding shortest paths among intensity data. Shortest paths are not a concrete or tangible result in the “real world.” What is the desired result of the method? Can the method possibly be achieved in a single step?

In order to for the claimed product to produce a “useful, concrete and tangible” result, recitation of one or more of the following elements is suggested:

- The manipulation of data that represents a physical object or activity transformed from outside the computer.
- A physical transformation outside the computer, for example in the form of pre or post computer processing activity.
- A direct recitation of a practical application;

Applicant is also advised to provide a written explanation of how and why the claimed invention (either as currently recited or as amended) produces a useful, concrete and tangible result.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3 and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication No.2003/0031351 to Yim.

With regard to claim 1, Yim discloses ***a method of constructing a grid for use in aligning two or more images, where said images reflect corresponding arrays of signals, comprising:***

applying an algorithm to the array which finds the shortest paths among the local intensity minima so as to delineate the local intensity maximum associated with a signal in the array (paragraph [0032], Yim discloses finding shortest paths in a an array using intensities or inverse intensities which is interpreted as using minima and maximum to define the paths).

With regard to claim 3, Yim discloses the method of claim 1 wherein the algorithm is Dijkstra's shortest path (paragraph [0032]).

With regard to claim 5, Yim discloses wherein the following construction of the grid, the grid is grown or shrunk to the expected boundary (Fig. 2D).

With regard to claim 6, Yim discloses wherein grid stagger is corrected (paragraph [0120]).

With regard to claim 7, Yim discloses wherein the grid coordinates are stored in a file (paragraph [0120]).

With regard to claim 8, Yim discloses wherein the algorithm is applied by a programmed computer (Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent Publications 2003/0031351 to Yim and 2003/0182068 to Battersby et al.

With regard to claim 2, Yim discloses finding shortest paths, but does not disclose that the array of signals originates for an array of encoded beads. Battersby discloses a grid of encoded beads (paragraph [0207]). Therefore it would have been

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obvious to one of ordinary skill in the art at the time of invention to use the shortest path determination using the grid of encoded beads disclosed by Battersby.

Allowable Subject Matter

6. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Also note that the 35 U.S.C. rejection of claim 1 must be overcome as well to put the claims in condition for allowance.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WESLEY TUCKER whose telephone number is (571)272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wes Tucker/
Examiner, Art Unit 2624